Attachment H

Proposal # 2001- F-202 (Office Use Only)

PSP Cover Sheet (Attach to the front of each proposal)

Proposal Title: Pilot Demonstration of Passivation Technology for Restoration of Newton Copper Mine

Applicant Name: Board of Regents, UCCSN For University of Nevada, Reno

Administrative Contact: Mary Husemoller

Mailing Address: University of Nevada, Reno, MS 325, Reno, NV 89557-0240

Telephone: 775-784-4040

Fax: 775-784-6680

Email: maryh@unr.edu

Amount of funding requested: $ 614,928

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.

State cost _____ Federal cost _____

Cost share partners? **____Yes** **__X__ No**

Identify partners and amount contributed by each _____

Indicate the Topic for which you are applying (check only one box).

☐	Natural Flow Regimes	☐	Beyond the Riparian Corridor
☐	Nonnative Invasive Species	☐	Local Watershed Stewardship
☐	Channel Dynamics/Sediment Transport	☐	Environmental Education
☐	Flood Management	☐	Special Status Species Surveys and Studies
☐	Shallow Water Tidal/ Marsh Habitat	☐	Fishery Monitoring, Assessment & Research
☒	Contaminants	☐	Fish Screens

What county or counties is the project located in? Amador

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible 11 Eastside Delta Trib (Mokelumne River)

Indicate the type of applicant (check only one box):

☐	State Agency	☐	Federal agency
☐	Public/Non-profit joint venture	☐	Non-profit
☐	Local government/district	☐	Tribes
☒	University	☐	Private party
☐	Other: _____		

Indicate the primary species which the proposal addresses (check all that apply):

☐	San Joaquin and East-side Delta tributaries fall-run chinook salmon		
☐	Winter-run chinook salmon	☐	Spring-run chinook salmon
☐	Late–fall run chinook salmon	☐	Fall-run chinook salmon
☐	Delta smelt	☐	Longfin Smelt
☐	Splittail	☐	Steelhead Trout
☐	Green sturgeon	☐	Striped bass
☐	White sturgeon	☐	All chinook species
☒	Waterfowl and Shorebirds	☐	All anadromous salmonids
☒	Migratory birds	☐	American shad
☒	Other listed T/E species: California Red-Legged Frog and Western Pond Turtle		

Indicate the type of project (check only one box):

☐	Research/Monitoring	☐	Watershed Planning
☒	Pilot/Demo Project	☐	Education
☐	Full-scale Implementation		

Is this a next-phase of an ongoing project? Yes X No ____
Have you received funding from CALFED before? Yes ____ No X

If yes, list project title and CALFED number n/a

Have you received funding from CVPIA before? Yes ____ No X

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

n/a

By signing below, the applicant declares the following:

- The truthfulness of all representation in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

BD. OF REGENTS, UCCSN, FOR
UNIV. OF NEVADA, RENO

Mary B. Husemoller
Printed name of applicant

Mary B. Husemoller
Signature of applicant

UNIVERSITY OF NEVADA RENO

Office of Sponsored Projects Administration/325
204 Ross Hall
Reno, Nevada 89557-0240
(775) 784-4040
FAX: (775) 784-6680
E-Mail: maryh@unr.edu
http://www.unr.edu/ospa/index.html

Mary B. Husemoller, *Director*
Sponsored Projects Administration

May 12, 2000

CALFED Bay-Delta Program Office
1416 Ninth Street #1155
Sacramento, CA 95814

Re: ***"Pilot Demonstration of Passivation Technology for Restoration of Newton Copper Mine,"*** **Misra, OSPA #2000797**

To Whom It May Concern:

Enclosed please find the required number of copies for the above referenced project under the direction of Manoranjan Misra. For the period of April 1, 2001 through March 31, 2003, monies in the amount of $614,928.00 are requested.

Please note we reserve the right at this time to negotiate any additional terms and conditions, other than those already noted. As a public university, Nevada state law on many issues limits us. Also any awards that may be forthcoming from this proposal must be issued and mailed to our legal title, address and to the attention of our authorized representative as follows:

Board of Regents, UCCSN, obo the
University of Nevada, Reno
OSPA / MS 325
Reno, NV 89557-0240
Attn: Mary B. Husemoller, Director, OSPA

For questions of a technical or program nature, please contact Dr. Misra. For contractual questions, please contact this office and ***refer to our P.I. and OSPA number.***

Sincerely,

Liz Greb
Sponsored Projects Administration

Encl:
Distribution:
Master
OSPA
M.Misra

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TABLES

ATTACHMENTS

PROPOSAL

Large-Scale Pilot Demonstration of Passivation Technology For Restoration of Newton Copper Mine

Submitted To: CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Applicant: Board of Regents, UCCSN
For University of Nevada, Reno
Attn: Mary B. Husemoller
Director, Sponsored Project Administration
University of Nevada, Reno (MS 325)
Reno, Nevada 89557

Project Director: Dr. Manoranjan Misra
Director, Center for Mineral Bioprocessing & Remediation
University of Nevada, Reno (MS 388)
Reno, Nevada 89557
Tel: 775-784-1603
Fax: 775-784-4949
Email: misra@unr.edu

Participants and Collaborators:

Mark Kravetz
Managing Director, Mining
Cherokee Chemical Co., Inc.
3540 East 26th Street
Vernon, CA 90023
Tel: 800-767-9112
Fax: 323-265-3111

Geraldine Cassinelli
Newton Copper Mine
Tahoe City, CA 96145
Tel: 530-581-2039
Fax: 530-583-7702

Dr. Dirk Van Zyl
Director, Mines Life Cycle Center
University of Nevada, Reno
Reno, NV 89557
Tel: 775-784-6770
Email: dvanzyl@mines.unr.edu

Larry Kamp
President
COUNSELTECH
3283 Isola Way
Lafayette, CA 94549
Tel: 925-934-5625
Fax: 925-934-5626

Dr. Raj K. Mehta
Research Professor
University of Nevada, Reno
Reno, NV 89557 Tel: 775-784-4321
Fax: 775-327-5128

Amador County RCD
12200 Airport Road
Jackson, CA 95642
Tel: 209-223-1846
Fax: 209-223-3758

EXECUTIVE SUMMARY

The thrust of this proposal is to conduct an on-site full-scale pilot demonstration of passivation technology for remediation and restoration of an inactive acid-generating Newton Copper Mine site. The pilot program is proposed on the basis of extensive laboratory test work conducted at the University of Nevada, Reno using a patented passivation process on Newton Mine tailings. Both short-term and long-term experimental work has shown that the passivation process is uniquely suitable for controlling acid, as well as inhibiting metal dissolution. The passivation process uses innocuous, fixative chemicals to form a stable coating on the reactive and acid-generating materials.

The Newton Copper Mine site is located in an ecologically sensitive area. It is adjacent to Highway 88, which is five miles from the city of Jackson, California in Amador County. The site is easily accessible for the pilot operation, data collection, and monitoring. A highly qualified team of experts from different organizations has been assembled to conduct and assist in the investigation. The University of Nevada, Reno, the owner of the passivation process, will be in charge of the project. The research collaborators include: 1) the owners of the Newton Mine; 2) Cherokee Chemical Co., Inc.; and 3) COUNSELTECH, Inc. In addition, the Department of Conservation, the Office of Mine Reclamation, and Amador County will be available as consultants.

The demonstration pilot operation will be conducted at the Newton Mine site using three engineered and controlled pads. One pilot pad will be a controlled pad, and the other two will be the passivation demonstration pads. Each pad will be lined with 60 mil HDPE geomembrane and a single-sided geocomposite drainage layer. Each pad will be equipped with 18-30 spray stations. Only a lime neutralization process will be used in the controlled pad. One of the passivation demonstration pads will be injected with magnesium oxide slurry (UNR-process), and the other with a dilute basic permanganate solution in conjunction with magnesium oxide (DuPont process). The solution will be injected through irrigation channels. Leachate samples will be collected from the three pads at different heights and locations to determine the effectiveness of the process.

The controlled and demonstration pilot pads will be monitored for pH and dissolved metals for a period of twelve months. After that remediated pads will be restored and monitored for an additional twelve months. In addition to the above parameters, other variables such as solution migration, channeling, effect of weathering, and any possible role of chemical activity will be established.

The outcome of this investigation will establish guidelines for remediation in other abandoned and inactive mine sites in the state of California. The immediate potential sites will be Afterthought Mine and Iron Mountain Mines. The project director is working with the owners of these two mines in California. Large scale laboratory test work has shown that there are no adverse impacts associated with the project.

PROJECT DESCRIPTION

1. Statement of Problem

Acid Mine Drainage (AMD) is a serious environmental problem facing many inactive, abandoned and active mine sites throughout the United States. The impact of AMD is particularly serious in the Western United States, where mining activities generated huge amounts of mine wastes. Nearly two billion tons of waste rocks, tailings and leach residues are generated each year by mining and processing of ores (Brandon-Pignolet et al., 1990). The mining waste containing sulfide minerals such as pyrite, marcasite, and pyrrhotite oxidize readily in the presence of oxygen, water and microorganisms to produce acid mine drainage (Misra, et al., 1993). The rate of oxidation depends on the sulfide content, morphology, and bacterial activity (Doyle and Mirza, 1990). A simplified conceptual reaction pathway for acid mine drainage is shown in Figure 1. As can be seen, the formation of sulfuric acid and ferric ions enhances the solubilization of a number of heavy metals. It is estimated that more than 7,500 miles of rivers and streams are expected to be contaminated by AMD. In the state of California there are approximately 13 acid-generating mine sites. These sites need immediate attention in order to prevent damage to the watersheds, ecosystem, and habitat.

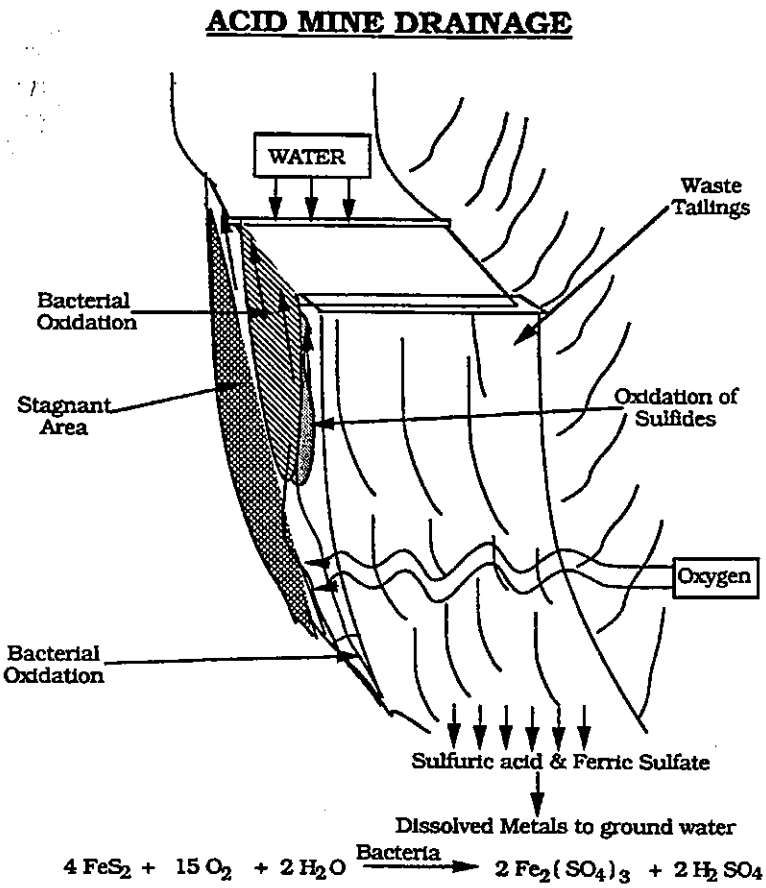


Figure 1. Schematic of Acid Mine Drainage Reaction Path and Reaction Mechanism

It is imperative that preventative measures must be taken to mitigate acid mine drainage. One preventive measure is the coating of sulfides. Over the past few years, DuPont has developed a novel coating method which is known as a passivation technology. Recently, DuPont Passivation Technology (De Vries, N.H.C., 1996 and Marshall et al., 1998) was donated to the University of Nevada, Reno (UNR) for further development of the process and commercialization. The passivation process can be used in-situ without removing the mining wastes, or it can be used ex-situ.

2. Passivation Process

The passivation process essentially creates an inert layer on the sulfide phase by contacting the sulfide with a basic permanganate solution to produce an inert manganese-iron oxide layer. This layer prevents contact with atmospheric oxygen during weathering of the sulfide rock, thus preventing sulfuric acid generation as shown in Figure 2. Another critical element of the process is the addition of trace amounts of magnesium oxide during pH adjustment (Mehta, Chen, and Misra, 2000). Magnesium oxide addition enhances the coating strength. Recently, the University of Nevada, Reno has developed a magnesium oxide process which is referred to as the UNR process. An Atomic Force Microscope (AFM) picture of a typical reactive pyrite (FeS_2) after passivation using the process is given in Figure 3. For comparison, the same pyrite particle before passivation is also presented in Figure 3. The massive nature of passivation coating can be seen clearly from Figure 3.

3. Application of Passivation Technology for Newton Mine Tailings

Three different Newton Copper Mine tailings were tested over the past year. Passivation and acid-generating potential of the tailings with and without treatment were conducted using the standard protocols which were developed by the University of Nevada, Reno. Without any passivation (i.e., blank) the final pH of the solution was around 2.0 within the first five minutes, indicating that the tailings are indeed acid producing.

In the DuPont process, 10 grams of tailings were mixed with CaO, MgO and dilute basic $KMNO_4$ at pH 12.0. After mixing for three hours, tailings were filtered and washed. The passivated solid fractions were treated with 30% H_2O_2 to determine the acid-generating potential of the passivated sample. The system pH after H_2O_2 treatment was measured as a function of time. In the UNR process, the same amount of tailings were mixed with MgO and the pH of the suspension was adjusted to 10. For comparison, a series of control tests were conducted. In the control test, tailings were mixed with lime and the pH was adjusted to 12 with caustic. A similar conditioning and H_2O_2 treatment were used. Acid-generating potential of the passivated and controlled sample as determined by hydrogen peroxide treatment is given in Figures 4-6. For comparison, pH of the tailings in water (blank) is also given in the same figure.

The control test, which was treated with lime and caustic (without any permanganate and/or magnesium oxide), showed a temporary and short time buffering action when subjected to the acid-generating potential test using hydrogen peroxide. The pH of the solution dropped to 3 after 200 minutes for samples 5-8 and 23-2. Only sample 22-3 took almost 1400 minutes to reach pH 3. On the other hand, both the DuPont Process and the UNR Process were successful in controlling acid generation using the hydrogen peroxide treatment procedures for all three samples (5-8, 22-3 and 23-2).

The above preliminary tests showed that the Newton Copper Mine tailings can successfully be passivated. On the basis of preliminary test work, a large-scale column passivation work was conducted using as-received rock sample in a packed column. After passivation, the passivated sample was taken for a long-term humidity cell experiment. Results obtained from the humidity cell are shown in Tables 1 and 2. As can be seen, the pH of the leachate obtained from the humidity cell experiment was always above 6.5 for the six weeks period. The sulfate concentration was also around 27-100. The UNR process using mixed oxide of calcium and magnesium showed similar results (see Table 2).

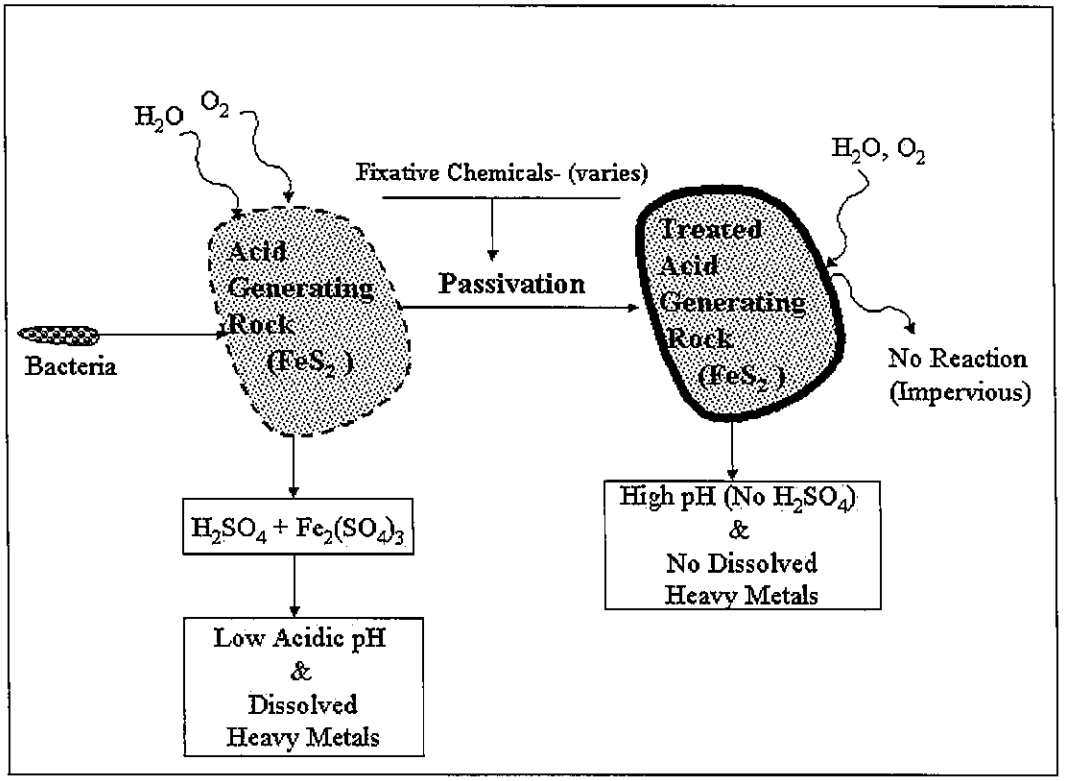


Figure 2. Acid Rock Passivation Process

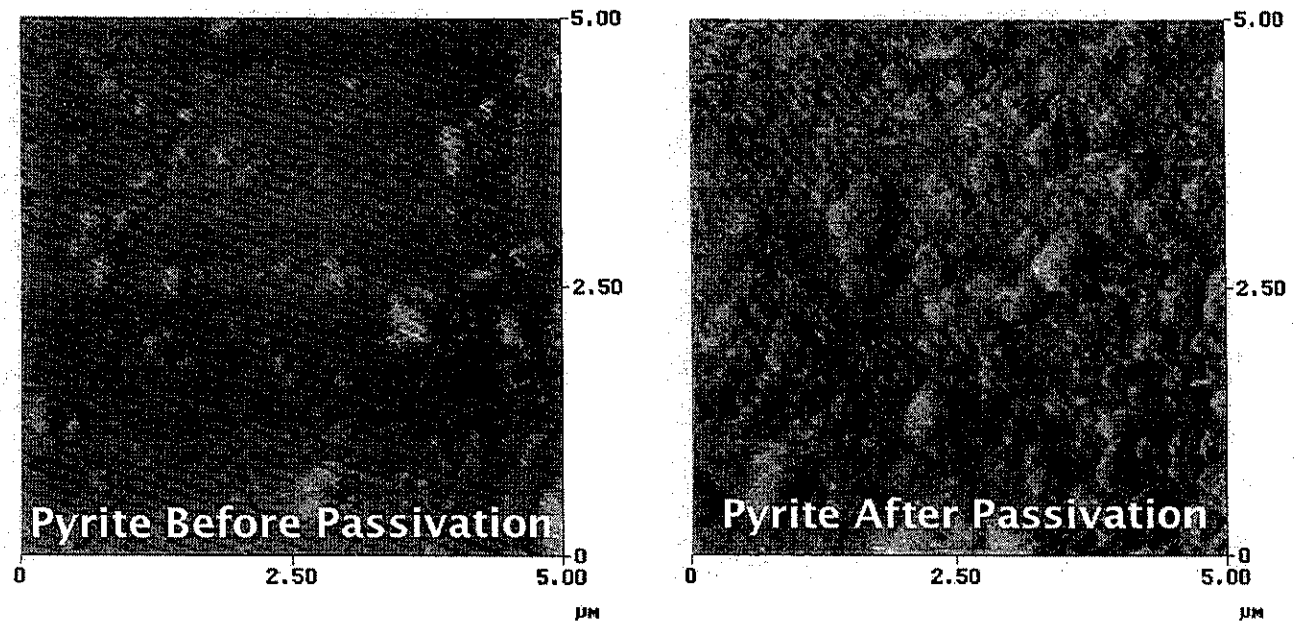


Figure 3. Atomic Force Microscope (AFM) picture of pyrite particle before and after passivation (5 micron scale)

Figure 4. Solution pH Values in Peroxide Test for Newton Sample-1 (5-8)

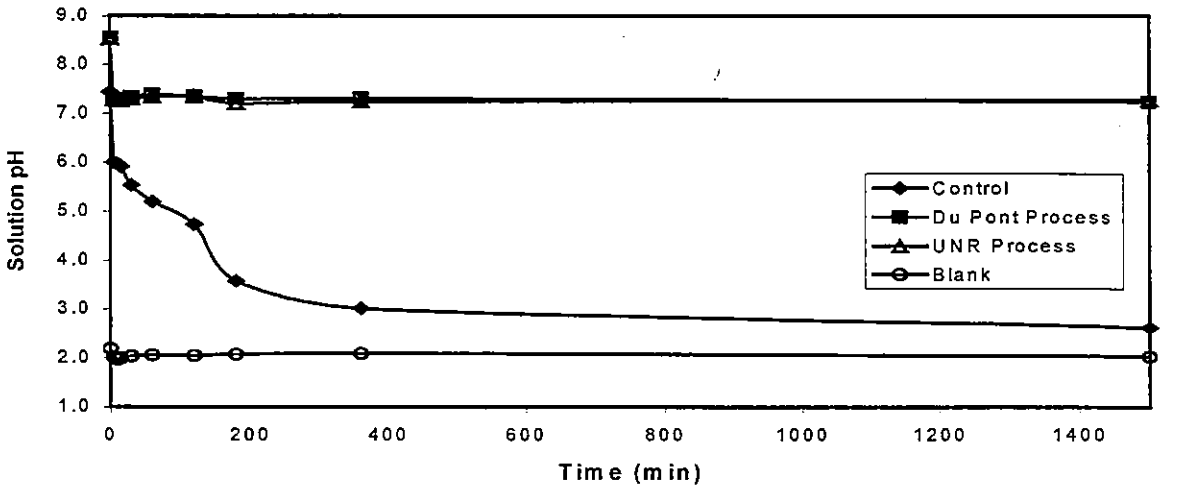


Figure 5. Solution pH Values in Peroxide Test for Newton Sample-2 (22-3)

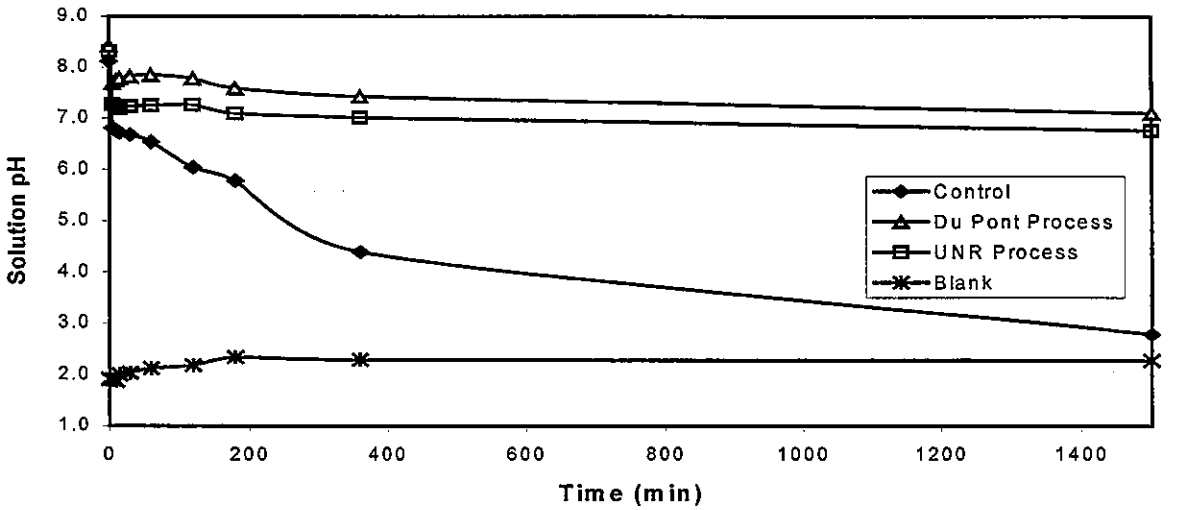


Figure 6. Solution pH Values in Peroxide Test for Newton Sample-3 (23-2)

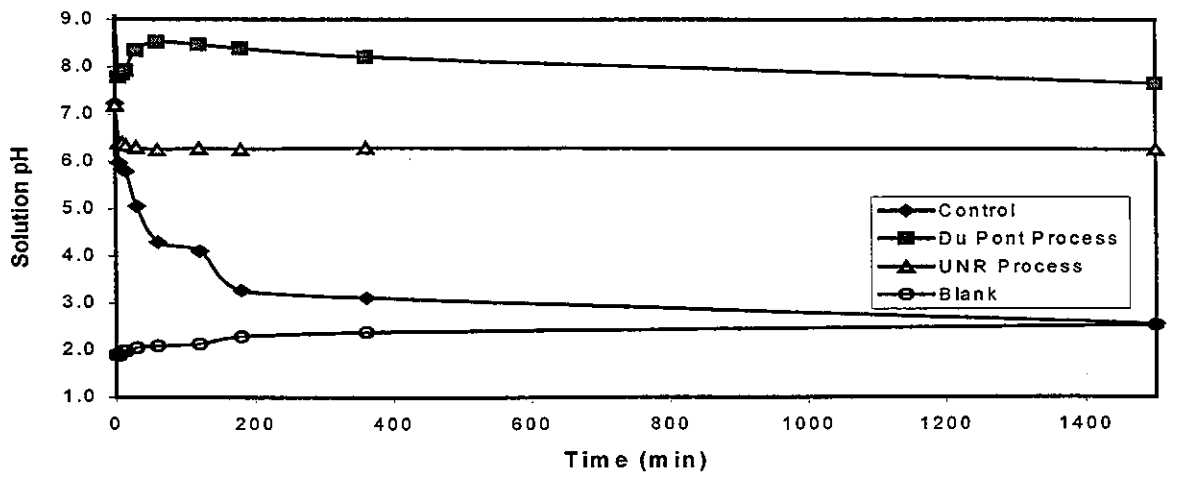


Table 1. Analysis Of Leachates Obtained From Humidity Cell Experiments

Column Test: DuPont Process
Experimental Condition: Dosage: CaO: 2.0 kg/ton; MgO: 1.0 kg/ton; $KMnO_4$: 0.044 kg/ton; pH=12

Sample	WEEK -1	WEEK -2	WEEK -3	WEEK -4	WEEK -5	WEEK -6
Constituents	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*
PH	8.96	8.92	8.45	8.49	8.54	8.18
Sulfate	156	18.6	31.0	40.2	35.9	73.6

Table 2. Analysis Of Leachates Obtained From Humidity Cell Experiments

Column Test: UNR Process
Experimental Condition: Dosage: MgO: 3.5kg/ton; pH=10

Sample	WEEK-1	WEEK -2	WEEK -3	WEEK -4	WEEK -5	WEEK -6
Constituents	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*	*(mg/l)*
PH	7.63	8.05	7.61	8.31	8.32	8.09
Sulfate	492	139	95.6	28.4	26.3	27.8

PROPOSED SCOPE OF WORK

1. PROJECT LOCATION

The project objective is to demonstrate the application of passivation technology in the remediation and restoration of the Newton Copper Mine. The Newton Copper Mine operated as an active copper mine through 1946. It is an abandoned copper mine located in Amador County, six miles west of the city of Jackson, California, adjacent to Highway 88. The location of the site is shown in Figure 7. The parcel consists of approximately 64 acres. Approximately 15,000 cubic yards of tailings at this site are the source of acid mine drainage.

A tributary to Copper Creek originates about a half-mile northeast of the Newton Mine. The tributary is intruded by a portion of the mine tailings before reaching its confluence with Copper Creek about a half-mile downstream of the mine. Copper Creek travels northwest about 1.5 miles, where it joins Sutter Creek, which flows west to Dry Creek, a tributary to the Mokelumne River.

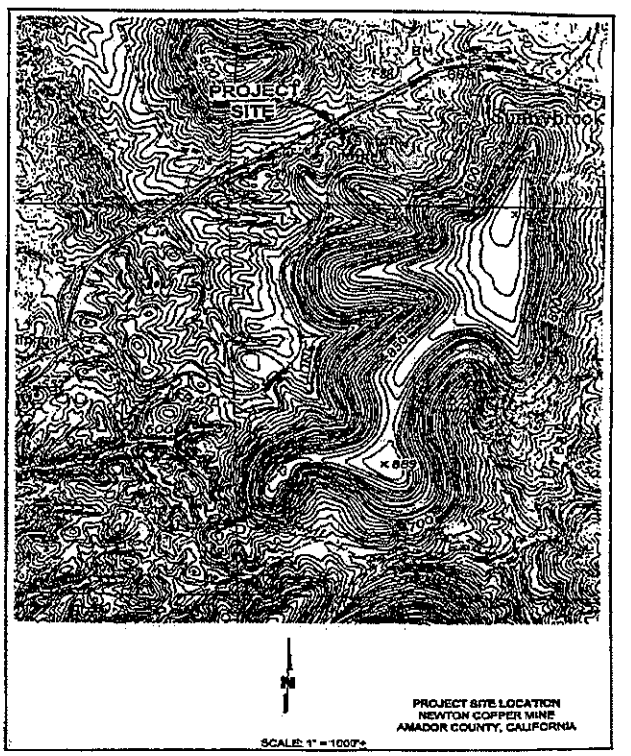


Figure 7

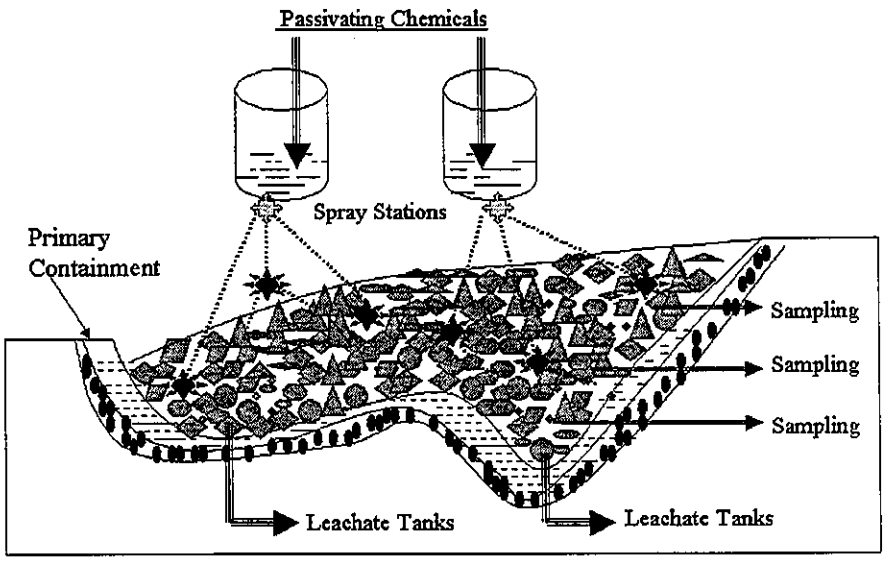
The Mokelumne River joins the San Joaquin River in the region of the Delta. The Newton Mine resides in the northeast quadrant of the 1130 acre Copper Watershed. The mine is an identified source of acid mine discharge into the tributary of Copper Creek, and has adversely impacted the wetland habitats in the vicinity of the mine. This pilot demonstration will consist of three pads: 1) control pad; 2) passivation pad – DuPont process; and 3) passivation pad – UNR process.

2. WORKPLAN

Task 1: Pad Mobilization and On-site Pilot Tests

It is planned to prepare three pilot pads. One test pad will be treated with lime and will act as a control pad. Of the other two pads, one test pad will be treated by the UNR process, and the other by the Dupont process. The size of each pad will be approximately 30'x30'x25' and will hold 50-100 tons of waste tailings. Each pad will be surrounded with a basin having dimensions of 40'x40'. The basin will be lined with 60 mil HDPE geomembrane, and single-sided geocomposite drainage layer. Each pad will be equipped with 18-30 spray stations constructed out of modified sprinklers and irrigation drips. The chemicals will be stored in 500-gallon tanks. These pads will be covered with bird netting covers and surrounded with a 15' fence.

Figure 8 Conceptual Design of Pilot-Passivation Demonstration Project in Newton Copper Mine



After the passivation and control treatment of the pads, the liquid discharge collected in the basin will be pumped and stored in three separate tanks. The discharge will be analyzed for pH and 32 dissolved heavy metals. The tanks will be moved to an off-site location for discharge. A schematic of the pilot operation pad is given in Figure 8.

Task 2: Sample Collection and Monitoring

Leachate samples from three pilot pads will be collected every 24 hours for one month, and twice a week for an additional eleven months. The leachate will be analyzed by a certified laboratory for the following parameters:

- pH
- conductivity
- TDS
- 32 dissolved elements
- acidity
- alkalinity

In addition, solution migration, channeling and the effect of other geochemical variables will be studied. A twelve month monitoring is required to establish the effect of weathering in a natural environment. Depending upon the analytical results, incremental addition of fixative chemicals will be used.

Task 3: Long Term Weathering Tests

In order to establish the uniformity and applicability of the passivation process, it is proposed to do column humidity tests. These tests will be done at the University of Nevada, Reno. Approximately 1 kg of representative waste rock will be collected from each pad at different points. These samples will be brought to UNR for testing. The representative control and passivated samples will be used in humidity cell set-up (ASTM-D5744) for long-term weathering. In these tests, dry air (one week), humid air (one week), and moisture (one week) will be used. After each cycle (three weeks), solution will be tested for pH, conductivity, acidity, sulfate and 32 dissolved elements. The humidity cell experiments will run for 52 weeks.

Task 4: Film Stability Evaluation Tests

Selected, treated samples will be used in freezing/thawing and coating degradation tests at UNR. A series of experiments will be conducted to mimic what will happen if the passivated materials are encountered with low pH acidic discharge from another source at the mine site. In order to simulate that condition, passivated samples will be washed with water having different pH (i.e., 4 and 6). The leachate obtained from washing will be analyzed for dissolved constituent, as described before. In another experiment, oxidized pyrite waste rocks will be put on the top of the passivated waste rocks in the column. Water will be percolated through the pyrite bed, which will be in contact with passivated rocks. The stability of the passivated film under that condition will be established.

It is planned to vary the temperature between 0 and 35°C to see the effect of freezing and thawing cycles, as well as the effect of different microorganisms on the passivated materials. In addition to conventional chemical analysis, passivated materials will be examined by Scanning Electron Microscope (SEM), Energy Dispersive X-ray Analysis (EDXA), and Atomic Force Microscopy (AFM).

Task 5: Post-Remediation Activity

As discussed earlier, two of the passivated pads will be monitored for a period of twelve months. Contingent upon the success of the process, one or both of the pilot plants will be used for ecological restoration. It is proposed to revegetate the passivated tailings using native perennial plants and seeding. Following the revegetation, the growth characteristics of the plants and flow-through the restored pilot pads will be monitored for an additional nine months. During that period, pH and concentration of dissolved metals will be monitored. This phase of the study will establish the aesthetic and ecological suitability of the process.

In addition, the controlled pad, which was prepared to give baseline information, will be treated with the passivated chemicals for final remediation and restoration. The controlled pad passivation will be initiated simultaneously with the restoration activity.

3. LINKAGES

This project specifically addresses the ERP's strategic objective, targets, and programmatic actions associated with the loading of toxic pollutants and contaminants in all aquatic environments in the CALFED region. The common goal is the reduction of concentrations and loading of metal contaminants to eliminate the adverse impact to the aquatic environment. The project is also in direct accordance with the CALFED Ecosystem Restoration Program Goal No. 6, which includes the maintenance of water quality to eliminate toxic impacts on ecosystem organisms. These common goals will assist the overall CALFED objectives to improve the quality of the Bay-Delta ecosystem via ERP. Additionally, the restoration of the Newton Mine can be used to further demonstrate appropriate long-term preventative solutions to abandoned mine remediation in California. The Water Quality Program will need such studies as they progress into the enormous issue of restoration of abandoned mine lands. The Newton Mine exists under Cleanup and Abatement Order No. 98-178 issued by CVRWQCB on May 20, 1998. The proposed funding is requested to initiate the pilot operation which will lead to the complete prevention of AMD and restoration of the site.

4. SYSTEM-WIDE BENEFITS

The system-wide benefits of this project will be largely related to water quality and the demonstration of appropriate ecosystem restoration methods for abandoned mine remediation. The improved health of the environment that was adversely impacted by the mine will benefit the overall ecosystem of the region by enhancing the natural processes vital to the balance of the system. The positive benefits of this project in the form of an improved aquatic environment will compliment other ecosystem restoration projects in the state of California.

Compatibility with Non-Ecosystem Objectives

This project will provide direct benefits for CALFED objectives addressing water quality. CALFED programs associated with watershed management are also benefited by this project. Benefits to third parties will include improved water quality for downstream users and aesthetic improvements to the mine site and surrounding environment.

5. LOCAL INVOLVEMENT

The proposed project involves coordination with county and local government to maintain understanding of the proposed remediation/restoration project. Local environmental groups, conservancies, and local landowners are being notified to ensure awareness of the project and its associated impacts. Copies of Letters of Support from Congressman John T. Doolittle, Senator Tim Leslie, Assembly man Thomas Rico Oller and Director of General Services Administration Trevor Mottishaw of Amador County are included as an attachment. Organizations and groups that have been notified include:

- Amador County Board of Supervisors
- Mokulemne River Watershed Group
- Amador County RCD
- Office of Congressman J.T. Doolittle

The plan for public outreach will include the posting of public notices to concerned parties and public meetings conducted by the Amador County Board of Supervisors and the Amador County RCD. Potential third party impacts will be positive and realized as improvements to the health and aesthetic values of the ecosystem and water quality of the Copper Creek watershed.

6. BUDGET DESCRIPTION

The total overall budget is given in Table 3. The total budgeted costs requested from CALFED for each task are listed in the Table 4. The University of Nevada, Reno, in collaboration with the Newton Mine Company, has spent almost $60,000 for analytical work and laboratory testing of the mine tailings for passivation.

7. SCHEDULE DESCRIPTION

Table 5 shows the start/completion dates for each tasks specified in the Scope of Work. The proposed Scope of Work is developed to be implemented in several phases and thus would be appropriately accommodated by incremental funding.

REFERENCES

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M. Misra, K. Yang and R.K. Mehta. 1996. Application of fly ash in the agglomeration of reactive mine tailing. *Journal of Hazardous Materials*, 51:181-192.

Monsur, M.R. 1996. Study of pyrite oxidation by electrochemical impedance spectroscopy. M.S. Thesis, University of Nevada, Reno.

Table 3. Overall Proposed Budget (2 years)

A. SALARIES		
Professional		
• Project director/Co-Principal Investigator		$ 61,500
• Research Staff		52,500
Graduate Students		15,000
		129,000
B. FRINGE		
24% of the professional salary		27,360
Graduate student (2%)		300
		27,660
C. TRAVEL		12,000
D. SUPPLIES AND MATERIALS		67,500
E. SUBCONTRACTS		
Subcontract 1 (construction) Cherokee Chemicals/COUNSELTECH		211,000
Subcontract 2 (analysis) Bonded laboratory in California		25,000
		$236,000
F. TUITION		16,000
G. OVERHEAD		
44.3% of A, B, C, & D		104,618
44.3% of the first $25,000 of Subcontract 1		11,075
44.3% of the first $25,000 of Subcontract 2		11,075
	Total Overhead	126,768
	PROJECT TOTAL	$614,928

Table 4. Proposed Detailed Budget by Task

			Subject to Overhead							Exempt from Overhead		
Year	Task	Direct Labor Hours	Salary	Benefits	Travel	Supplies & Expendables	Service Contracts	Sub-total	Overhead (44.3%)	Equipment	Graduate Student Fee Remission	Total Cost
	Task 1 Pad- Mobilization and on-site pilot test											
Year 1	1.1 Planning & design	100	$5,000	$1,200	$1,000	$0	$0	$7,200	$3,190	$0	$0	$10,390
	1.2 Permitting	50	$2,500	$600	$500	$0	$0	$3,600	$1,594	$0	$0	$5,194
	1.3 Mobilization and construction	480	$24,000	$5,760	$2,000	$22,000	$120,000	$173,760	$34,890*	$0	$4,000	$212,650
	Task 2 2.1 Sample Collection and monitoring	1,000	$30,000	$7,200	$3,000	$18,000	$10,000**	$68,200	$25,782	$0	$0	$93,982
	2.2 Analytical Work	0	$0	$0	$1,000	$5,000	$25,000**	$31,000	$13,733	$0	$0	$44,733
	Task 3 3.1 Long-term weathering-UNR	500	$7,500	$150	$500	$5,000	$0	$13,150	$5,825	$0	$0	$18,975
	3.2 Analytical Work-UNR	0	$0	$0	$0	$10,500	$0	$10,500	$4,651	$0	$0	$15,151
	Task 4 Film stability & evaluation	500	$7,500	$150	$500	$1,000	$0	$9,150	$4,053	$0	$4,000	$17,203
	Project Managenent	200	$10,000	$2,400	$500	$0	$0	$12,900	$5,714	$0	$0	$18,614
Total Cost Year 1		2,830	$86,500	$17,460	$9,000	$61,500	$155,000	$329,460	$99,432	$0	$8,000	$436,892

Year 2	Task 5 5.1Post Restoration	100	$5,000	$1,200	$500	$0	$50,000	$56,700	$2,968	$0	$4,000	$63,668
	5.2 Monitoring	750	$22,500	$5,400	$2,000	$5,000	$0	$34,900	$15,460	$0	$0	$50,360
	5.3 Analytical	0	$0	$0	$0	$1,000	$10,000	$11,000	$448	$0	$0	$11,448
	5.4 Decommissioning	100	$5,000	$1,200	$0	$0	$21,000	$27,200	$2,746	$0	$4,000	$33,946
	Project Managenent	200	$10,000	$2,400	$500	$0	$0	$12,900	$5,714	$0	$0	$18,614
Total Cost Year 2		1,150	$42,500	$10,200	$3,000	$6,000	$81,000	$142,700	$27,336	$0	$8,000	$178,036
Total Project Cost		3,980	$129,000	$27,660	$12,000	$67,500	$236,000	$472,160	$126,768	$0	$16,000	$614,928

* Construction – Subcontract overhead charged to first $25,000 only

** EPA/State California Laboratory for chemical analysis– Subcontract overhead charged to first $25,000 only

Table 5. Monthly Project Schedule For Two Years (After Project Initiation)

Activities	First Year												Second Year											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Planning & Submittal	X	X																						
Agency Review & Modification		X	X																					
Permitting		X	X																					
Mobilization Project			X	X	X																			
Construction				X	X																			
Monitoring & Sample Collection				X	X	X	X	X	X	X	X	X	X	X		X								
Analytical				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Humidity Cell & Film Stability									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Post-Restoration																	X	X	X	X	X	X	X	X
Decommisioning																								

QUALIFICATIONS AND MANAGEMENT PLAN

The University of Nevada, Reno (UNR) will be responsible for administering the grant, developing project planning, and the collection and analysis of data. **Dr. M. Misra**, Director of the Center for Mineral Bioprocessing and Remediation, will be the project director. **Dr. Dirk Van Zyl**, Director of the Center for Mine Life Cycle, will be involved in the design of the pilot plant and the geo-technical aspect of the project. The contractual and financial part of the project will be administered by Mary Husemoller, Director of Sponsored Projects, and **Jerry Best**, Manager of Grants and Contracts, respectively. The actual on-site testing and engineering work will be conducted by Cherokee Chemical Company and COUNSELTECH. **Ms. Geraldine Cassinelli**, one of the owners of the Newton Mine, will be responsible for permitting and on-site engineering coordination work. A project management chart, along with specific individual responsibilities covering technical, administrative and project management, is shown in the project management chart (Figure 9).

Dr. M. Misra has over 19 years experience in the research and development of process remediation and control of acid mine drainage. **Dr. Misra** is Professor and Chairman of the Metallurgical and Materials Engineering department of the University of Nevada, Reno. He is also the Director for the Center for Mineral Bioprocessing and Remediation. He has six patents in the areas of heavy metals and the removal and treatment of acid mine drainage. He has improved the original DuPont passivation technology as applied to AMD. **Dr. Misra** has worked on several acid mine drainage projects including Iron Mountain Mines, Newton Copper Mine, and the Afterthought Mine, all in California. He has worked on other AMD projects involving Hecla Mining Company in Idaho, Brohm's operation in South Dakota and the Newmont Mining operation in Nevada. **Dr. Misra** will be the Director of the project.

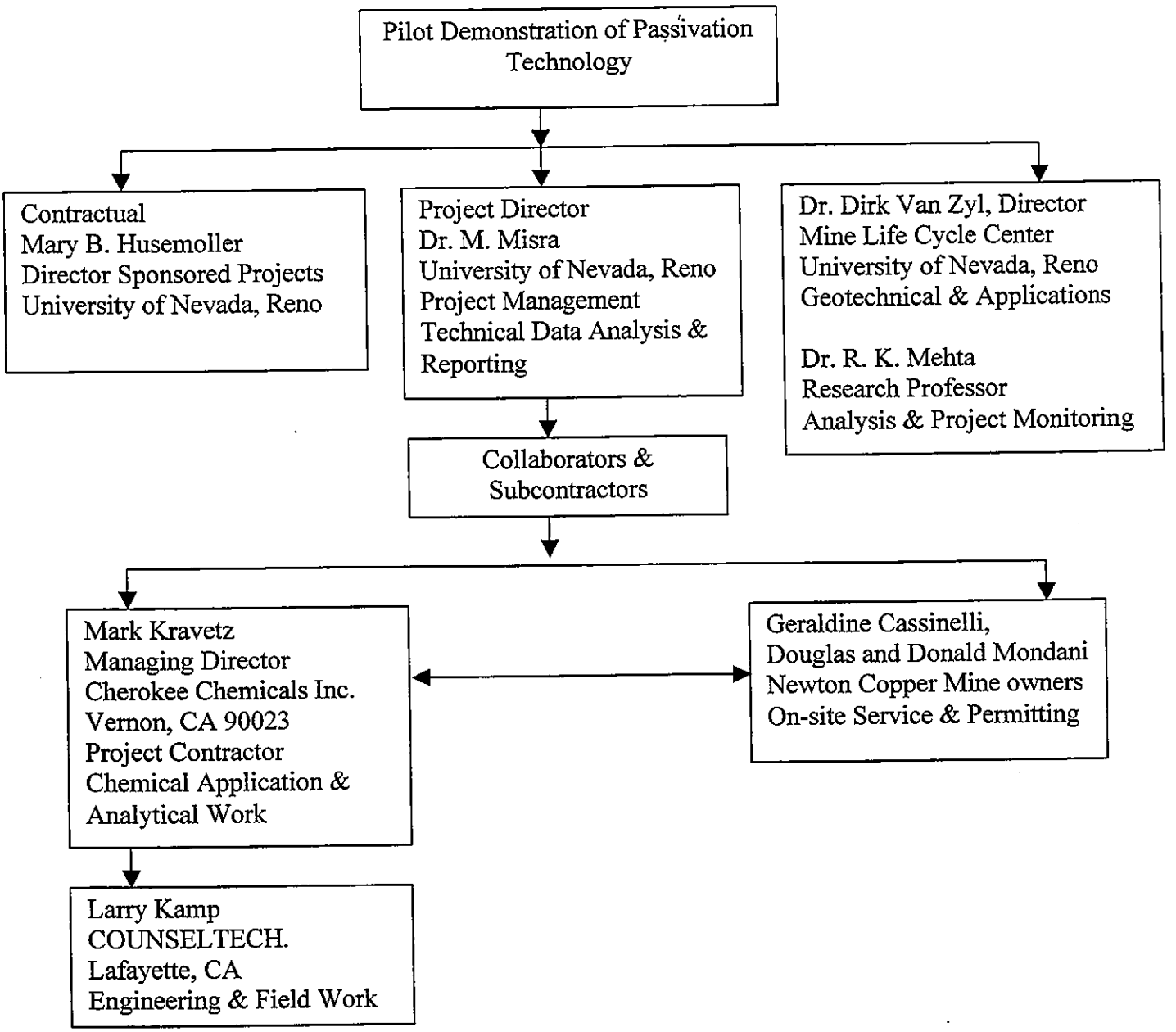
Dr. Dirk Van Zyl is the Director of the Mine Life Center at the Mackay School of Mines. **Dr. Van Zyl** has a Ph.D. in Civil Engineering. He is a registered professional engineer in twelve states, including the state of California. **Dr. Van Zyl** was Vice President of TRC Companies, Golden Associates and EIC Corporation. He has been the project manager for many mining related projects in North America, Europe, Southeast Asia and Latin America. He is working with Placerdome to apply passivation technology to control AMD at the Sunlight Mine in Montana.

Dr. R. K. Mehta has been involved in AMD and other mines related problems since 1988. Dr. Mehta is a Research Professor in the Center for Environmental Science and Engineering. He will be in-charge of analytical protocol, QA, and monitoring aspects of the project.

Mark Kravetz of Cherokee Chemical, Inc. is the Managing Director of Mining Applications. He has been involved in acid mine drainage and waste water treatment for over 15 years. **Mr. Kravetz** has worked directly with Newmont Mining, Barrick, Placerdome, and Hecla Mining Company. Cherokee Chemical Company will be the prime subcontractor to run the passivation demonstration on-site along with COUNSELTECH.

Larry Kamp is the President of COUNSELTECH. **Mr. Kamp** has designed many heap operations with appropriate instrumentation. Mr. Kamp will be involved in the construction of the passivated pads. D & E construction of VISALIA, California will work with COUNSEL-TECH.

Figure 9. PROJECT MANAGEMENT CHART



FROM: DO
JOHN T. DOOLITTLE
4TH DISTRICT, CALIFORNIA

DEPUTY WHIP

COMMITTEES:
GOVERNMENT REFORM

RESOURCES
CHAIRMAN—SUBCOMMITTEE ON WATER AND POWER

TRANSPORTATION AND INFRASTRUCTURE

JOINT ECONOMIC COMMITTEE

Congress of the United States
House of Representatives

1526 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0504
(202) 225-2511

2130 PROFESSIONAL DRIVE SUITE 190
ROSEVILLE, CA 95661-3738
(916) 786-5560
(800) 232-1336

Doolittle@mail.house.gov
http://www.house.gov/doolittle

May 10, 2000

Mr. Steve Ritchie
Acting Executive Director
CALFED Bay Delta Program
1416 9th Street, Suite 1155
Sacramento, CA 95814

Dear Mr. Ritchie:

I am writing to request your support for a CALFED grant for a watershed restoration project along Highway 88 between Ione and Jackson in Amador County. The grant would allow the University of Nevada at Reno's (UNR) Mackay School of Mines to complete the field study and remediation of the Newton Copper Mine site using the passivation method.

The California Regional Water Quality Control Board Central Valley Region has asked the present owners of the property, Donald and Douglas Mondani and Gerri Cassinelli, to clean up the site. The water and soil tests are complete and a plan has been developed, but the cost of the reports and studies, along with the final cleanup and restoration work itself, have exceeded the financial means of the property owners.

The owners, in conjunction with UNR and Cherokee Chemical, are applying for a grant to complete the pilot program and the remediation. UNR has invested time and money to the project and has found the passivation process of old mine acid drainage cleanup to work well on mine materials from the Newton Copper Mine site. As a result, this project could serve as a new model method of environmental cleanup for the many mines in California.

I strongly urge you to approve this grant application.

Sincerely,

JOHN T. DOOLITTLE
U.S. Representative

JTD:blj

COMMITTEES:
CHAIRMAN
FINANCE, INVESTMENT & INTERNATIONAL TRADE
VICE CHAIRMAN
APPROPRIATIONS
RURAL CAUCUS
MEMBER:
INSURANCE
NATURAL RESOURCES AND WILDLIFE
WESTERN STATES LEGISLATIVE FORESTRY TASK FORCE
SUBCOMMITTEES:
INSURANCE SUBCOMMITTEE ON HEALTH CARE REFORM
NATURAL RESOURCES AND WILDLIFE SUBCOMMITTEE ON RIVER PROTECTION AND RESTORATION

JOINT COMMITTEES:
FAIRS ALLOCATION AND CLASSIFICATION
LEGISLATIVE BUDGET
PRISON CONSTRUCTION AND OPERATIONS
SELECT COMMITTEES:
CALIFORNIA'S WINE INDUSTRY
GENETICS AND PUBLIC POLICY
PRISON MANAGEMENT

Senate
California Legislature

TIM LESLIE
SENATOR, FIRST DISTRICT

May 8, 2000

CALFED Bay Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

TO WHOM IT MAY CONCERN:

I am writing to convey my support of a proposal submitted by the owners of the Newton Copper Mine – Gerri Cassinelli, Donald Mondani, and Douglas Mondani, and the University of Nevada, Metallurgical and Materials Engineering in collaboration with Cherokee Chemical for a pilot program and remediation of the Newton Copper Mine.

The Newton Copper Mine, adjacent to Highway 88 between the towns of Ione and Jackson, was established in the 1860's as a source of copper during periods of war. The mine was last worked in 1947. In 1994, the California Regional Water Quality Control Board requested a clean-up of the mine acid drainage. Since 1995, the owners have hired several consultants to develop a plan for remediation which is beyond the financial ability of the owners.

With recent research and patents secured by the University of Nevada, a new method of clean-up called passivation has been developed. The University of Nevada in Reno (UNR) has processed mine waste rock from the Newton Copper Mine and has achieved very favorable results in the laboratory setting. Phase III requires a field pilot project and Phase IV would incorporate the remediation of the mine site using passivation.

This mine is an ideal setting as it is a small mine, and it is close and easily accessible by UNR. Since the owners had a waste characterization done and a general plan developed for the clean-up, it allowed UNR to develop a plan easily. Abandoned and inoperative mines are spread throughout California and the Mother Lode. Mine owners and the state of California are faced with the overwhelming task of remediating these mines, primarily to protect our state's water supply. The results of this project could bring a less costly means of mine clean-up throughout the Mother Lode of California, thereby expediting clean-up of abandoned and inoperative mines throughout California.

For these reasons, I urge CALFED to give this proposal every possible consideration.

Thank you in advance for your conscientious attention to this request.

Sincerely,

TIM LESLIE
Senator, First District

TL:cw

CAPITOL OFFICE
P.O. BOX 942849
SACRAMENTO, CA 94249-0004
(916) 319-2004
FAX: (916) 319-2104

DISTRICT OFFICE
2999 DOUGLAS BLVD., SUITE 120
ROSEVILLE, CA 95661
(916) 774-4430
FAX: (916) 774-4433
e-mail: Rico.Oller@asm.ca.gov

Assembly
California Legislature

THOMAS "RICO" OLLER
ASSEMBLYMAN, FOURTH DISTRICT

COMMITTEES:
INSURANCE
LABOR AND EMPLOYMENT
NATURAL RESOURCES
PUBLIC SAFETY
SELECT COMMITTEE ON RURAL ECONOMIC DEVELOPMENT

May 5, 2000

Mr. Steven Richie
Acting Director
CALFED Bay Delta Program
1416 9th Street, Suite 1155
Sacramento, CA 95814

Dear Mr. Richie:

I am writing to support the request of a CALFED grant for an ecosystem restoration project on the Newton Copper Mine, located outside of Ione in Amador County. The funds provided would be used by the University of Nevada (UN) to use a new process called passivation to stop the spread of acid mine drainage.

The Newton Copper Mine was a large copper mine that was worked between 1860-1943. These operations left a large amount of tailings, which create a runoff of sulfuric acid when water contacts them. The acid redissolves heavy metals that are toxic to fish and other aquatic life. Copper Creek runs through the mine area, and it carries the runoff with it as it drains toward the Delta. The present property owners, who never operated the mine, are under order from the California Regional Water Quality Control Board to clean up the site, but they do not have the resources to do so. The University of Nevada has a new process called "passivation" that causes the tailings to become inert and stop the continued leaching of sulfuric acid into the environment. The property owners are eager to use this new process that could provide another method to clean up the spread of toxins from heavy metals.

Initial tests on the tailings have shown that passivation successfully changed the pH of the leachate. UN is anxious to have an opportunity to use this process on a larger scale and my constituents see this as an important step toward correcting the present environmental concerns. Due to the close proximity of the Newton Copper Mine to the Bay Delta itself, this would be a worthy ecosystem restoration project. It could also turn out to be a model for clean up of many other abandoned mine sites in California. I strongly urge you to approve this grant application.

I appreciate your consideration of this important matter.

Sincerely,

Rico Oller

Thomas "Rico" Oller

OFFICE OF
GENERAL SERVICES ADMINISTRATION

MAIL: 12200 Airport Road - Jackson, CA 95642 - (209) 223-6375 - FAX 223-0749 - E-MAIL - tmottishaw@co.amador.ca.us
LOCATION: 12200 Airport Road - Martell, CA

May 5, 2000

CALFED Bay Delta Program
1416 9th Street, Suite 1155
Sacramento, CA 95814

To Whom It May Concern:

This letter is in support of a proposal being submitted by the University of Nevada to perform field testing of the Newton Copper Mine site in Amador County which is owned by Mr. Douglas Mondani, Mr. Donald Mondani, and Mrs. Gerri Cassinelli. The Amador County Board of Supervisors has been and is supportive of the owners in their efforts to obtain the funding necessary for reclamation of the mine site.

The Newton Mine is an old wartime copper mine which is located adjacent to State Highway 88 between the cities of Jackson and Ione. Operation of the mine began in the 1860's and was a source of copper during wartime and operations ceased in 1947. The California Regional Water Quality Board requested the water drainage through the mine site be cleaned up by the owners of the property in 1994, even though the owners had never operated the mine. The owners had consultants complete water tests and a waste characterization report and an engineering plan. As a result of the reports, proposed reclamation costs were too expensive for the owners to pursue.

In an effort to remediate the existing problem, the University of Nevada has tested three different Newton Copper Mine tailings of the past six months using passivation technologies which have proven to be successful.

Much work has been performed by the owners to develop an acceptable plan. However, the high costs make it impossible for them to continue. Please give this proposal consideration and help us help you clean up the environment.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Trevor Mottishaw
Director

Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.*

1. **Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?**

   _____ **YES**

   X **NO**

2. **If you answered yes to # 1, identify the lead governmental agency for CEQA/NEPA compliance.**

   _____
   Lead Agency

3. **If you answered no to # 1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.**
   Proposal to conduct a field pilot operation of an experimental nature on two 10,500 lb. samples not involving the issuance or need for permits from the County.

4. **If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.**

5. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

   _____ **YES**

   ✓ **NO**

   If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply.

LOCAL		
Conditional use permit	—	
Variance	—	
Subdivision Map Act approval	—	
Grading permit	—	
General plan amendment	—	
Specific plan approval	—	
Rezone	—	
Williamson Act Contract cancellation	—	
Other _____ (please specify)		
None required	X	
STATE		
CESA Compliance	—	(CDFG)
Streambed alteration permit	—	(CDFG)
CWA § 401 certification	—	(RWQCB)
Coastal development permit	—	(Coastal Commission/BCDC)
Reclamation Board approval	—	
Notification	—	(DPC, BCDC)
Other _____ (please specify)		
None required	—	
FEDERAL		
ESA Consultation	—	(USFWS)
Rivers & Harbors Act permit	—	(ACOE)
CWA § 404 permit	—	(ACOE)
Other _____ (please specify)		
None required	—	

DPC = Delta Protection Commission
CWA = Clean Water Act
CESA = California Endangered Species Act
USFWS = U.S. Fish and Wildlife Service
ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act
CDFG = California Department of Fish and Game
RWQCB = Regional Water Quality Control Board
BCDC= Bay Conservation and Development Comm.

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.*

1. **Do the actions in the proposal involve physical changes to the land(i.e. grading, planting vegetation, or breeching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?**

   ____ YES X NO

2. **If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only).** Research & testing of laboratory method to render inert residual sulfide minerals which have the potential to pollute local streams.

3. **If YES to # 1, what is the proposed land use change or restriction under the proposal?**

4. **If YES to # 1, is the land currently under a Williamson Act contract?**

   X YES ____ NO

5. **If YES to # 1, answer the following:**

   Current land use ____
   Current zoning "AG" Exclusive Agriculture
   Current general plan designation A-G Agricultural-General (40 ac. density)

6. **If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?**

   ____ YES X NO ____ DON'T KNOW

7. **If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal?**
   ____

8. **If YES to # 1, is the property currently being commercially farmed or grazed?**

   ____ YES ____ NO

9. **If YES to #8, what are** the number of employees/acre____
   the total number of employees ____

10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)?

_____ YES / NO

11. What entity/organization will hold the interest? _____

12. If YES to # 10, answer the following:

Total number of acres to be acquired under proposal _____
Number of acres to be acquired in fee _____
Number of acres to be subject to conservation easement _____

13. For all proposals involving physical changes to the land or restriction in land use, describe what entity or organization will:

manage the property _____

provide operations and maintenance services _____

conduct monitoring _____

14. For land acquisitions (fee title or easements), will existing water rights also be acquired?

_____ YES _____ NO

15. Does the applicant propose any modifications to the water right or change in the delivery of the water?

_____ YES _____ NO

16. If YES to # 15, describe _____

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME BOARD OF REGENTS, UCCSN, FOR
University of Nevada, Reno

(mh) To the extent permitted by Nevada laws,
∧ The company named above (herinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME Mary B. Husemoller, Director
Sponsored Projects Admin.

DATE EXECUTED 5/11/00

EXECUTED IN THE COUNTY OF Washoe, State of Nevada

PROSPECTIVE CONTRACTOR'S SIGNATURE Mary B. Husemoller

Mary B. Husemoller, Director
Sponsored Projects Admin.

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME BD. OF REGENTS, UCCSN, FOR
UNIV. OF NEVADA, RENO

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95)

COMPANY NAME: Cherokee Chemical Company, INC.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME: Mark Kravetz

DATE EXECUTED: 05-10-00

EXECUTED IN THE COUNTY OF: Los Angeles

PROSPECTIVE CONTRACTOR'S SIGNATURE: [signature]

PROSPECTIVE CONTRACTOR'S TITLE: Managing Director

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME: C.C.I. / Cherokee Chemical Company, INC.

Attachment D
Terms and Conditions for State Proposition 204 Funds

This section provides terms and other conditions that will apply to contractual agreements for proposals receiving state Proposition 204 funds. Successful applicants receiving Proposition 204 funds will enter into a contract with the California Resources Agency. The specific terms and conditions that will apply to the contract will vary depending on the type of applicant (State agency, federal agency, other public entity, private for-profit, private non-profit) and the type of project receiving a grant (research/planning, construction, land acquisition).

The general contractual terms that apply to all Proposition 204 funds are set forth below. Additional State of California standard clauses will be required, depending on the type of applicant and the type of project. These additional State standard clauses are set forth at the end of this attachment. The applicability of the additional standard clauses is set forth in Table D-1.

All applicants should review the following lists of standard clauses. <u>If an applicant cannot agree to any standard clauses, the applicant must disclose this disagreement in their proposal or the standard clauses will be deemed nonnegotiable.</u> The State and NFWF reserve the right to refuse to alter any standard clauses.

1. <u>Term of Agreement</u>: The term of the Agreement will depend on the type of project and may range from 1 to 3 years. The Agreement shall not become effective until fully executed by the parties and approved by the Department of General Services.

2. <u>Payment Schedule</u>: No funds will be disbursed by the State or NFWF to Grantee without: (1) an executed copy of the Agreement; (2) receipt of an original invoice with supporting documentation; and (3) receipt and satisfactory completion of, or progress toward completion of, deliverables and/or phases of work as set forth in the Agreement, including quarterly financial and programmatic reports. Payments shall be in arrears within 30 days of receipt of an undisputed invoice by CALFED.

   Required supporting documentation includes an invoice breakdown by task and line item, including task and line item budget balance. Additional supporting documentation such as payroll detail, receipts for equipment, or general ledger information may be required.

3. <u>Performance Retention</u>: Disbursements shall be made on the basis of costs incurred to date, less ten percent of the total invoice amount. Disbursement of the ten percent retention shall be made either: (1) upon the Grantee's satisfactory completion of a discrete project task (ten percent retention for task will be reimbursed); or (2) upon completion of the project and Grantee's compliance with project closure requirements specified by CALFED (ten percent retention for entire project will be disbursed).

4. <u>Expenditure of Funds & Allocation Among Budget Items</u>: Grantee shall expend funds in the manner described in the approved project budget. Any variance in the budgeted amount

among tasks, or between line items within a task, requires approval in writing by the State or NFWF. The total amount of this contract may not be increased except by amendment of this Agreement. Any increase in the funding for any particular budget item shall mean a decrease in the funding for one or more other budget items unless there is a written amendment to this Agreement.

5. Subcontracts: Grantees are responsible for all subcontracted work. Subcontracts must include all applicable terms and conditions as presented herein. The State or NFWF must approve all subcontracts and all amendments to subcontracts. Unless the subcontract was submitted to CALFED with the proposal, Grantee must obtain at least 3 competitive bids for all subcontracted work; or comply with the provisions of Government Code section 4525 et seq. as applicable; or obtain the State or NFWF's approval for non-compliance with these requirements.

6. Substitution: If Grantee chooses to substitute different subcontractors or employees for those subcontractors or employees approved for the project as part of the Scope of Work, Grantee must notify the State or NFWF and obtain the State's or NFWF's approval.

7. Conflict of Interest: Grantee shall comply with all applicable State laws and rules pertaining to conflict of interest including, but not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411.

8. Standard of Professionalism: Grantee shall conduct all work consistent with the professional standards of the industry and type of work being performed under the Agreement.

9. Rights in Data: All data and information obtained and/or received under this Agreement shall be in the public domain. Grantee shall not sell or grant rights to a third party who intends to sell such product as a profit-making venture. Grantee shall have the right to disclose, disseminate and use, in whole or in part, any final form data and information received, collected, and/or developed under this Agreement, subject to inclusion of appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support. Grantee must obtain prior approval from CALFED to use draft data. Permission to use draft data will not be unreasonably withheld. CALFED will not disseminate draft data, but may make draft data available to the public upon request with an explanation that the data have not been finalized.

10. Acknowledgment of Credit: Grantee shall include appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support when using any data and/or information developed under this Agreement.

11. Indemnification: To the extent allowed by Nevada law The Grantee agrees to indemnify, defend, and save harmless the CALFED agencies, the State of California, the Resources Agency, the Department of Water Resources, and the National Fish and Wildlife Foundation and their officers, agents, and employees from

any and all claims and losses accruing or resulting to any or all contractors, subcontractors, material persons, laborers, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation who may be injured or damaged by the Grantee in the performance of this Agreement.

12. Independent Status: Grantee, and the officers, agents, and employees of Grantee, in the performance of the Agreement, shall act in an independent capacity and not as officers or employees or agents of the State of California, NFWF, the CALFED agencies, the Resources Agency, or the Department of Water Resources.

13. Termination Clause: The State or NFWF may terminate this Agreement by providing notice to Grantee in writing and be relieved of the payment of any consideration to Grantee should Grantee fail to perform the covenants herein contained at the time and in the manner herein provided. The State of NFWF will reimburse Grantee for reasonable obligations incurred by Grantee in performance of this Agreement prior to the date of the notice to terminate. In the event of such termination, the State or NFWF may proceed with the work specified in this Agreement in any manner deemed proper by the State. The cost to the State shall be deducted from any sum due the Grantee under this Agreement, and the balance, if any, shall be paid the Grantee upon demand.

14. Assignment: Grantee may not assign this Agreement, in whole or in part, without the written consent of the State.

15. Integration Clause: No alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto. The parties may amend this Agreement by mutual written consent and with approval by the State or NFWF.

16. Consideration: The consideration to be paid Grantee as provided in this Agreement, shall be in compensation for all of the Contractor's expenses incurred in the performance of this Agreement, including travel and per diem, unless otherwise expressly so provided.

17. Dispute Resolution: Any claim that Grantee may have regarding the performance of this Agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Executive Director, CALFED, within thirty days of its accrual. CALFED and Grantee shall then attempt to negotiate a resolution of claim and process an amendment to this Agreement to implement the terms of any such resolution.

18. Severability: If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

19. Time is of the essence in this Agreement.

FOR PROJECTS INVOLVING LAND ACQUISITION

The following terms will be required for projects that involve land acquisition, either in fee or by a conservation easement. CALFED may require certain of these terms to be included in the real property conveyance instruments for those projects involving land acquisition.

20. Purpose of Acquisition: The [describe interest in real property] that is the subject of this Agreement is being acquired by the Grantee pursuant to a grant of funds from the Resources Agency through the CALFED Bay-Delta Program for the purpose of implementing the CALFED Ecosystem Restoration Program. No use of the real property inconsistent with this purpose is permitted.

21. Approval of Land Acquisition Terms: The State shall approve the terms under which the interest in real property is being acquired pursuant to this Agreement.

22. Mitigation: The Grantee shall not use or allow the use of any portion of the real property acquired pursuant to this Agreement for mitigation to compensate for adverse changes to the environment elsewhere.

23. Fair Market Value: The purchase price of any interest in real property purchased under this Agreement shall not exceed the fair market value as established by an appraisal approved by the State.

24. Use, Management, Operation, and Maintenance: The Grantee shall use, manage, operate, and maintain the real property in a manner consistent with the purpose of the acquisition. The Grantee further assumes all management, operation, and maintenance costs associated with the real property, including the costs of ordinary repairs and replacements of a recurring nature, and costs of enforcement of regulations. The CALFED Program shall not be liable for any cost of such management, operation, or maintenance. The Grantee shall refrain from developing or otherwise using any other property it owns or controls in the vicinity of the real property in such a way as to interfere with or inconvenience the use, management, operation, or maintenance of the real property or to detract from the purpose of the acquisition. The Grantee may be excused from its obligations for management, operation, and maintenance only upon the written approval of the Executive Director of the CALFED Program, or its successor.

25. Transfer: The Grantee may not transfer the real property, or any interest in the real property, in whole or in part, without the approval of the Executive Director of the CALFED Program, or its successor.

TABLE D-1: PROPOSAL SUBMITTAL REQUIREMENTS AND STANDARD CONTRACT CLAUSES

		Services, Consulting, Preconstruction, Research, Land Acquisition					Public Works, Construction				
Item[1]	Standard Clauses and Proposal Requirements[2]	State	Federal	Public	Non-profit	Private	State	Federal	Public	Non-profit	Private
PROPOSAL REQUIREMENTS											
19	Nondiscrimination Compliance			✓	✓	✓			✓	✓	✓
4021	Bidders Bond or other Security (if contract values > $107,000)[3]									✓	✓
4206	Non Collusion Affidavit								✓	✓	✓
n/a	Proof of Contractor's License									✓	✓
CONTRACT REQUIREMENTS											
4100	Contracts with Public Entities			✓					✓		
4099	Service & Consultant Service Contracts with Nonpublic Entity				✓	✓				✓	✓
4099a	Additional Standard Clauses		✓	✓	✓	✓		✓	✓	✓	✓
4187	Interagency Agreements	✓					✓				
4247	Contracts with United States		✓					✓			
4197	General Conditions for Public Works Contracts								✓	✓	✓
4196	Insurance Requirements								✓	✓	✓
18	Nondiscrimination Construction Contract Specifications								✓	✓	✓
807	Payment Bond								✓	✓	✓
156	Performance Bond								✓	✓	✓
n/a	Certificate of Insurance								✓	✓	✓

Legend: State = State of California agencies, including State (California) Universities.
Federal = Federal agencies.
Public = Public entities, such as city, county, other local government entities, resource conservation districts, and out-of-state public entities.
Private = For-profit and non-profit organizations, and individuals.

[1] Item numbering refers to documents following this table.
[2] All contract terms and standard clauses apply to any subcontacts made by Contractor.
[3] Types of security include cashiers check, cash, certified check, or bidder's bond in an amount equal to 10 percent of the proposed amount.

State of California
CONTRACTORS STATE LICENSE BOARD
ACTIVE LICENSE

License Number 733203 Entity CORP

Business Name D & E CONSTRUCTION INC

Classification(s) B C61/D12

Expiration Date 03/31/2001

State of California DEPARTMENT OF WATER RESOURCES The Resources Agency

Agreement No.:_____

Exhibit:_____

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

STATE OF CALIFORNIA)
)ss
COUNTY OF_____)

Mark Kravetz, being first duly sworn, deposes and says
(name)

that he or she is Managing Director of
(position title)

Cherokee Chemical Company, INC.
(the bidder)

the party making the foregoing bid; that the bid is not made in the interest of, or on behalf of , any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

By _____
(Person signing for bidder)

DATED: 05/11/00

BETTY LAWRENCE
Notary Public - State of Nevada
Appointment Recorded in Humboldt County
No: 98-Notarial Seal-1 Expires September 20, 2003

Subscribed and sworn to before me on

May 11, 2000 by MARK KRAVETZ

Betty Lawrence
(Notary Public)

STATE OF NV
COUNTY OF HUMBOLDT

DWR 4208 (New 4/90, Master Current 3/99)

STATE OF CALIFORNIA — THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES

BIDDER'S BOND

We The University of Nevada, Reno will partake in the Scientific Application of technology

as PRINCIPAL, and

Cherokee Chemical Company, Inc. will partake in the Actual Performance of Work

as SURETY, are held and firmly bound unto the State of California in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named submitted by said Principal to the State of California, acting by and through the Department of Water Resources, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the Director of the Department to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety here under exceed the sum of $ 60,000.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above mentioned bid to the State of California, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at

Sacramento, California, on 05-15-00
(Insert name of city where bids will be opened) (Insert date of bid opening)

for Passivation and Control of Acid Mine Drainage at the Newton Copper Mine.

(Copy here the exact description of work, including location, as it appears on the proposal)

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 11th day of May A.D. 2000

_____ (Seal)
_____ (Seal)
_____ (Seal)
Principal
_____ (Seal)
_____ (Seal)
_____ (Seal)
Surety

Address 3540 E. 26th St Vernon, CA 90023

NOTE: Signatures of those executing for the surety must be properly acknowledged.

DWR 4021 (Rev. 2/94)

NEVADA INDIVIDUAL ACKNOWLEDGMENT

State of Nevada }
County of Humboldt } ss.

This instrument was acknowledged before me on this the 11th day of May, 2000, by
(1) MARK KRAVETZ
Name of Signer
(2) and _____
Name of Signer

BETTY LAWRENCE
Notary Public - State of Nevada
Appointment Recorded in Humboldt County
No: 99-38032-6 - Expires September 20, 2003

Betty Lawrence
Signature of Notary Public

OPTIONAL

Though the information in this section is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Bidder's Bond

Document Date: 5/11/00 Number of Pages: 1

Signer(s) Other Than Named Above: N/A

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

FEDERAL ASSISTANCE

2. DATE SUBMITTED	Applicant Identifier

1. TYPE OF SUBMISSION:

Application	Preapplication
☐ Construction	☐ Construction
☒ Non-Construction	☐ Non-Construction

3. DATE RECEIVED BY STATE	State Application Identifier
	SAI Exempt
4. DATE RECEIVED BY FEDERAL AGENCY	**Federal Identifier**

5. APPLICANT INFORMATION

Legal Name:	Organizational Unit:
Board of Regents, UCCSN, for Univ. of NV, Reno	Metallurgical & Materials Eng., MSM
Address *(give city, county, State, and zip code):*	**Name and telephone number of person to be contacted on matters involving this application** *(give area code)*
University of Nevada, Reno OSPA / MS 325 Ross Hall, Reno, NV 89557-0240	Dr. M. Misra 775-784-1603

6. EMPLOYER IDENTIFICATION NUMBER *(EIN):*

8 8 — 6 0 0 0 0 2 4

7. TYPE OF APPLICANT: *(enter appropriate letter in box)* I

A. State — H. Independent School Dist.
B. County — I. State Controlled Institution of Higher Learning
C. Municipal — J. Private University
D. Township — K. Indian Tribe
E. Interstate — L. Individual
F. Intermunicipal — M. Profit Organization
G. Special District — N. Other (Specify) _____

8. TYPE OF APPLICATION:

☒ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es) ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other*(specify):*

_____

9. NAME OF FEDERAL AGENCY:

CALFED
through Dept. of Energy

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:

☐☐ — ☐☐☐

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

Pilot Demonstration of Passivation Technology for Restoration of Newton Copper Mine

12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.):*

California, Amador County

13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date	Ending Date	a. Applicant	b. Project
1-5-2001	4-30-2003	NV 2	CA 4

15. ESTIMATED FUNDING:

a. Federal	$ 614,928.00
b. Applicant	$ .00
c. State	$ .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 614,928.00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE _____

b. No. ☒ PROGRAM IS NOT COVERED BY E. O. 12372
☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☒ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Type Name of Authorized Representative	b. Title	c. Telephone Number
Mary B. Husemoller	Director, Spons.Proj.Adm.	775-784-4040
d. Signature of Authorized Representative		**e. Date Signed**
Mary B. Husemoller		5/11/00

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Prescribed by OMB Circular A-102

ASSURANCES - NON-CONSTRUCTION PROGRAMS

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.		$	$	$	$	$
2.						
3.						
4.						
5. Totals		$	$	$	$	$

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
a. Personnel	$ 129,000	$	$	$	$
b. Fringe Benefits	27,660				
c. Travel	12,000				
d. Equipment	∅				
e. Supplies	67,500				
f. Contractual	236,000				
g. Construction					
h. Other Tuition	16,000				
i. Total Direct Charges *(sum of 6a-6h)*	488,160				
j. Indirect Charges	126,768				
k. TOTALS *(sum of 6i and 6j)*	$ 614,928	$	$	$	$
7. Program Income	$	$	$	$	$

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SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	$	$	$	$
9.				
10.				
11.				
12. TOTAL *(sum of lines 8-11)*	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 436,870	$ 109,217.50	$ 109,217.50	$ 109,217.50	$ 109,217.50
14. Non-Federal					
15. TOTAL *(sum of lines 13 and 14)*	$ 436,870	$ 109,217.50	$ 109,217.50	$ 109,217.50	$ 109,217.50

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	$ 44,507.75	$ 44,507.75	$ 44,507.75	$ 44,507.75
17.				
18.				
19.				
20. TOTAL *(sum of lines 16-19)*	$ 44,507.75	$ 44,507.75	$ 44,507.75	$ 44,507.75

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
Mary B. Husemoller	Mary B. Husemoller, Director Sponsored Projects Admin.
APPLICANT ORGANIZATION BOARD OF REGENTS, UCCSN, FOR University of Nevada, Reno	DATE SUBMITTED 5/11/2000

CHEROKEE
chemical co., inc.

May 8, 2000

Dr. M. Misra
Professor and Chair
Metallurgical and Materials Science Engineering
Mackay School of Mines
University of Nevada, Reno
Reno, NV 89557

REF: CALFED Bay-Delta Proposal "Pilot Scale Demonstration of Passivation Technology for Restoration of Newton Copper Mine"

Dear Dr. Misra:

The Cherokee Chemical Co., Inc. is willing to work with the University of Nevada, Reno as a subcontractor in the proposed project. Cherokee Chemical Co., Inc. will employee a licensed contractor in the construction of the pilot operation. The subcontract for passivation will be $211,000 and the subcontract for analytical work will be $25,000.

If you need additional information or if you have any questions, please do not hesitate to contact me.

Sincerely,

Mark Kravetz

3540 East 26th Street, Vernon, CA 90023 • Phone (800) 767-9112 Fax (323) 265-3111